The Association Between Team Skills and Nursing Team Performance: A Malaysian Perspective

Azlyn Ahmad Zawawi^{1*} & Aizzat Mohd. Nasurdin²

¹Universiti Teknologi MARA, Merbok, Kedah, Malaysia. ²Universiti Sains Malaysia, Penang, Malaysia.

ABSTRACT

Objective: Nursing team performance is essential because nurses work interdependently with others and their routines require them to create an effective synergy through collective effort. Nursing teams must be effective in order to reduce medical errors and deliver the best safe care to patients. For that reason, members must possess skills that are relevant and imperative to team functioning. This article aims to examine the association between team skills and team performance. Team performance is categorized into two dimensions; team task performance and team contextual performance. **Methods**: This study was done on selected nursing teams in Peninsular Malaysia. Data was collected from 1436 individual nurses and responses were aggregated to 300 teams from seven major specialist public hospitals in Peninsular Malaysia. Analysis was done via structural equation modeling using Partial Least Squares (PLS). **Results**: Results indicated that team skills positively relate to both dimensions of team performance. The findings of this study support previous studies which posit that team members often display team performance behaviors when they perceive that they are collectively competent in task accomplishments.

Keywords: Team Task Performance, Team Contextual Performance, Team Skills, Nursing Teams, Malaysia

INTRODUCTION

Team performance is mainly a result of team members' engagement in tasks and teamwork processes that are geared toward completing a task, particularly through collective integration, synthesis, and sharing of information [1]. Team performance phenomenon reflects the processes of team taskwork, teamwork, and other team-level activities to produce end products and services. The literature on team performance covers the aspects of productivity [1], effectiveness [2, 3], quality [4, 5, 6] and teamwork [7, 8, 9]. Achieving team performance also requires skillful members, effective first meetings, clear rules of behavior, new information to challenge the team, as well as feedback, recognition, and reward [10].

* Corresponding author:

Dr. Azlyn Ahmad Zawawi Universiti Teknologi MARA, Merbok, 08400, Kedah, Malaysia.

Email : azlyn@kedah.uitm.edu.my Tel no: +6044562663 In the context of nursing, teams that pursue high team performance must have a good leaderfollower relationship, good task management, and adaptive behaviors [11]. Further claimed that in critical areas such as the intensive care unit, real complex events such as shock scenarios and cardiopulmonary arrests often require the nursing team to stay intact and vigilant. Frontliners such as nurses face unprecedented stress and the lack of skills and expertise could be among the risk factors that cause low team performance [12]. Poorly coordinated skills could trigger setbacks which affect subsequent tasks, which later lead to lower team resilience [12]. It is thus crucial for nursing teams to achieve high team performance in order to create a better quality of healthcare delivery [11].

What is currently known?

In the medical field, nursing teams are worthy representations of effective medical teams. Nurses are not only involved in treatment and medication protocols but also accountable in providing assessment of health needs and implementation of care plan to patients [13]. Shiftwork, evolution of medicine, and patients' demands have increased the expectations on nurses, and nurses are expected to be actively involved in work teams and achieve greater competence through team performance [13]. Shortage of staff and increasing workload of nurses are challenging the value of care towards patients and could jeopardize the quality of a nursing work environment [14,15]. This calls for a practical and productive work strategy that demonstrates good cooperation and teamwork. Continuous aspiration for high team performance needs to be inculcated to nursing team members because team performance is vital to ensuring the achievement of health objectives. These emerging conditions offer an opportunity for researchers to explore the importance of team performance in nursing teams.

What this study adds to the current body of knowledge?

There is paucity of studies on team performance in nursing settings [16,17] and even more so in Malaysia. Most studies pertaining to Malaysian nurses only focused on individual performance [18,19,20,21,22]. Since the National Core Competency for Malaysian Nurses [23] highlighted teamwork as an important element, there is a need for more studies done on performance at the team level. This study attempts to address the paucity of the existing research.

Beside that, this study also intends to investigate the effect of team skills on team task performance and team contextual performance. One of the contributory factors to poor medical administration to patients is the lack of skills, and ineffective management of teams [24]. This is specifically true in the Malaysian context where medical errors have been speculated as possibly the number two killer in Malaysia [25]. In [26] study on twelve public clinics in Malaysia, they found that medication errors is the most common medical error in public clinics. The errors include wrong dosage of medication, inappropriate medication, and use of non-evidence based drugs, all of which are forms of management errors that had affected 53.2% of all medical records. Other errors are documentation errors (98%) and diagnostic errors (3.6%). These percentages are alarming especially in public hospitals where the numbers of patients are constantly increasing. Nurses, as upheld by [27], contribute largely to medical error statistics, which resulted from low skills management and poor team performance. All things considered, there is a need to further explore the critical role of team performance in nursing.

Literature Review

Bidimensionality of Team Performance

Extant literature on team performance reveals multiple attempts by scholars to categorize team performance into several dimensions. For instance, [28] classified team performance into effectiveness

efficiency criteria. Accordingly, and [2] established their two main criteria of team performance, which are perceived technical quality and perceived ability to meet customers' needs. The variables of team performance are further divided by [29] into quantitative and qualitative components. In another study, [30] classified team performance according to team's productive output, team's social processes, and group experience. This is further supported by [31], who claimed that the dimensions of team performance relate to three main components: productive output, sustainability of team processes, and satisfaction of team members.

However, the bidimensions most widely used in conceptualizing team performance was in the forms of team task performance and team performance [32,33,34,35]. contextual This segregation is based on the earlier works of [36] and [37], who distinguished task performance from contextual performance at individual level. At individual level, task performance focuses on one's proficiency to complete assigned tasks, and this may include concerns for technical details and specified functioning of task components. On the other hand, contextual performance at the individual level involves persistence (with enthusiasm), volunteering, helping, and cooperating. It also concern organizational rules, procedures, and endorsing, as well as supporting and defending organizational objectives [36]. In many ways, team task performance and team performance contextual represent team performance in two distinguished ends while still being highly relevant to one another. In a further study, [34] also suggested that team performance is a result of the team's teamwork and taskwork processes. Taskwork processes include individual work components that can operated be independently by team members, whereas teamwork processes consist of performance structures that are interdependent and intercoordinated across multiple individuals in a team.

Team task performance

Task performance in a team is established through the team's technical knowledge and learning orientation [33]. It deals with activities that contribute to an organization's technical cores which are technological process, provision of materials, or provision services. Team task performance varies across jobs and it is roleprescribed. Its antecedents are more likely to involve cognitive ability than personality variables. There are two classes of behavior included in task performance at an individual level [36, 37]. The first class characterizes the activities that directly transform raw materials to goods and services that an organization produces. The second class contains activities that service and maintain the technical core by furnishing the supply of raw materials; distribute end products; and provide planning, coordination, and staffing functions (including supervising) to enable effective functioning of the technical core [36].

In the context of nursing, task performance involves activities such as administration of medicines, medical treatment and procedures, and attending to patients [38, 39]. As mentioned by [40], nursing task performance includes the provision of information and technical care, and the provision of support and coordination of care. These tasks are carried out in teams, thus the way they are performed will indicate the level of understanding and technical capabilities of the nursing team members. Team task performance is established by accomplishing a team's technical knowledge and learning orientation [35]. Although it does not necessarily require interdependent interactions between the team members [34], the teammates must still be aware of each other's technical capabilities to facilitate achieving the team's mission. [41] Posited that team task performance requires an effective coordination between team tasks, tools, machines, and systems involved, suggesting that in achieving greater performance, the skills of the team members must be effectively coordinated with tasks at hand. In nursing teams, team task performance is also reflected through the full understanding of clinical information patients' [42]. High understanding of clinical and technical knowledge will influence how the team reacts during critical incidents [42]. For instance, in confronting with public health emergencies such as natural disaster and bioterrorism attacks, nurses must be wellskills and equipped with the situational information to handle patients' anxiety and fear [43]. With sufficient knowledge on assigned tasks, high performance teams will have less duplication of work and are able to locate resources efficiently [44]. In definition, a good management of task will reflect a high pursuit of task performance among nursing teams.

Team contextual performance

Team contextual performance involves the activities that give impact to an organization's social and psychological environment [33]. Such activities include teammates helping behavior, job dedication, and other reflective actions that can inculcate teamwork. Team contextual performance usually reflects teamwork properties such as acceptance towards suggestions or criticisms, cooperation, communication, team spirit and

morale, adaptability, coordination, and acceptance of suggestions or criticisms [9]. In addition, team contextual performance includes sets of interrelated thoughts, actions, and feelings of team members which are important to the team functioning [41]. [35] Stated that teamwork behaviors explain contextual performance in ways that it (teamwork behaviors) supports the organizational, social, and psychological context in which team members have to perform. Besides, [36] particularly mentioned that teamwork reflects contextual performance because the former blends in teammates' cooperation, camaraderie, and concern for unit morale, which in turn boosts team spirits and performance. Overall, teamwork behaviors justify various aspects of team contextual performance because the latter is illustrated through five taxonomy dimensions: persisting with enthusiasm; volunteering; helping and cooperating; following organizational rules and procedures; and endorsing, supporting, and defending organizational objectives [36].

extant literature indicates that team The contextual performance has been studied widely in nursing settings. Examples of works include [45, 46, 47]. With the advancement of medical technology, the outbreaks of new diseases, and the prolonged problem of nursing shortage, nursing teams must be able to exert greater contextual performance that are beneficial to the team and the patients at large [48,49,50]. Team contextual performance is also essential to the overall team performance because cooperation, helping behaviors, and teamwork explains the nontechnical side of team performance. This attribute is needed to balance the technical aspects brought about by team task performance. As for nursing teams, the way they progress through their social context is crucial in elevating team performance. Nursing teams need to adapt to role changes and increase their effective coordination of care, especially in public hospitals where the numbers of patients are overwhelming and where nursing care has become more specialized [48,49,50,51].

According to [52] a healthy nursing work environment often includes good and supportive relationships. In team contextual work relationships, the supportive relationship comprises job task support, interpersonal support, team members' compliance, and volunteering for additional duties [40]. In a similar way, contextual performance in nursing teams can be demonstrated through the team's personal and social support, and their relationship dimensions (nurse and physician collaboration), which

usually lead to better patient outcomes [53]. A high performing clinical teams, according to [54], usually reflect high collaborations, tolerance, and understanding of each other's role. All these elements suggest the importance of high team contextual performance that drives teams' success.

Team skills

Team skills refer to the blend of knowledge, talent, and experience possessed by team members [30]. Team skills include interpersonal skills [30], social skills [33], and cognitive skills [55]. These set of skills will allow team members to effectively communicate and coordinate in order to accomplish team assignments. [56] asserted that the correct mixture of skills in teams will assist team functioning, especially when tasks become complex and interdependent. Team more members' composition of skills affects the performance achievement of team [57]. Meanwhile, the contribution of members' skills will determine the progression towards team success [30]. A good composition should contain a mixture of technical skills possessed by team members and not simply focus on individual-level skills. [9] In their model of teamwork skills asserted that team skills is not stagnant because it will develop and evolve, thus it is crucial for team members and their leaders to be aware of their skills' development. In teams, technical skills, social skills, cognitive skills and interpersonal skills must be managed strategically to ensure greater performance [30, 33,58].

For nursing teams, each member must be able to coordinate, direct and supervise care. These are among relevant team skills that are needed for team performance. In addition, nurses must be able to initiate and maintain teamwork especially in complex situations [59]. [60] professed that team skills are important as the majority of decisions are made collectively. These skills include interaction skills, functional skills, and patient education skills [61]. Patient education skills consist of skills to advise patients to self-care and home-care [62]. A study by [61] concluded that; a good skill mix in nursing teams can lead the team to higher satisfaction, lower stress, and lower burnout level among its members. Increased team skills will lead to improved team outcomes through lower patient mortality, lower wound infections, and lesser especially medication errors during real emergency encounters [61,62]. Furthermore, the skills possessed by nursing teams are needed to ensure role fulfillment, as nurses act as the source of information for doctors [63]. It is certain that in nursing settings, better management of team skills will bring out the best ability of each team members and lead the team to delivering better team performance. This in turn, will result in better quality care.

Based on the aforementioned discussion, our hypotheses are as the following:

A. There will be a positive relationship between team diversity and team contextual performance.

B. There will be a positive relationship between team skills and team contextual

METHODS

The objective of this research is to investigate the effect of team skills on team performance. Data was collected cross-sectionally at the team level, thus aggregation of score was done. Self-administered questionnaires were distributed to team leaders and team members in a non-fixed setting, with minimal contact between respondents and the researcher.

This study involved nursing teams located in state public hospitals in Peninsular Malaysia. These state public hospitals or also known as full-service hospitals provide the latest and most updated facilities and trained staffs. Data was collected from nursing teams, which were assigned to specified hospital wards. Nursing teams located in hospital wards represent frontline service delivery in public healthcare as they deal with patients on a daily basis [64]. They also work interdependently to deliver safe care to patients [467 48].

Nursing teams working in hospital wards is headed by a team leader (whose job designation is called as a 'sister'), who reports to a nurse supervisor (whose job designation is called as a 'matron'). This study laid out two requirements to be fulfilled by the respondents before they are qualified to answer the questionnaires. The requirements were: (1) the team leader needs to work directly with team members, and (2) each participating nursing team must consist of minimum three team members. This is in accordance to the suggestions made by [65] and [54] concerning the minimum number of members suitable for data analysis in team studies. To ensure consistency in data collection and response rate, each hospital were informed that the minimum number required for a team in this study is four. Specifically, a team should have at least three members and one leader.

Sampling and data collection procedure

The sampling technique used in this study is purposive sampling. This technique is justifiable when the target group of respondents are required to match the research criteria intended [66]. 320 sets of questionnaires were sent out to the participating hospitals. From twelve state hospitals, seven state hospitals agreed to participate, three withdrew participation due to busy schedule and internal issues, and another two did not respond to the research invitation although ample time was given for them to respond. From seven participating hospitals, 320 teams were gathered as the respondents. Each team consisted of a maximum of four members, and one team leader. In total, 1600 individual questionnaires were distributed to team members. Total responses involved 1436 individual nurses. Following [67] and [68], teams' response was gathered through aggregation of data. Research instrument were distributed in a non-fixed setting, via the Head of Nurse (Chief Matron).

In terms of protocol procedures, the Ministry of Health required all research involving medical personnel to register via National Medical Research Register (NMRR). After successful registration, the researcher then had to obtain individual approval from twelve state public hospitals throughout Malaysia in seeking the permission to distribute research instruments at their premises. Their approvals via an IA-HOD-IP Form (Investigator Agreement, Head of Department, and Institutional Approval Form) were then submitted online to NMRR to obtain clearance from Medical Research Ethics Committee (MREC). After approval has been granted from MREC, all twelve state hospitals were re-contacted for data collection. In this process, seven state hospitals agreed to continue participation in this study. Three hospitals withdrew participation due to busy schedule and unspecified internal issues. Meanwhile, the remaining two hospitals did not respond to the research invitation although enough time was provided for response. Hence, 320 sets of questionnaires were sent out to seven hospitals via a person in charge appointed by the Chief Matron of each participating hospital. At the end of two weeks, the sets of questionnaires were personally collected by the researcher.

Measurements

Team performance was measured via a sevenpoint Likert scale ranging from (1) strongly disagree to (7) strongly agree. The scale covered two dimensions i.e. team task performance and team contextual performance. Both scales constituting these dimensions were adapted from [33]. Adaptations were made as to suit the scale to Malaysian nursing team context. Team task performance consisted of five items that reflect aspects; these team members efficiently performing their job duties, using tools and equipment in completing tasks, performing routine maintenance, planning and organizing work, and working safely. Meanwhile, team contextual performance was measured through nine items that reflected interpersonal facilitation, interpersonal helping, job dedication, and individual initiative [33]. Team task performance and team contextual performance scales were answered by both team leaders and team members.

To measure nursing team skills, a set of scale from [30] was adapted. Adaptations were made as to ensure the items in the scale suited the context of Malaysian nursing teams. Team members were requested to state their degree of agreement towards the statements in each dimension via a five-point Likert scale ranging from (1) strongly disagree to (5) strongly agree. This scale was answered by both team leaders and team members.

Measurement model was established to examine the reliability (item reliability and internal consistency) and validity (convergent validity and discriminant validity) of items. High item reliability represented high correlation between items and the construct [69]. Meanwhile, internal consistency of a construct was measured by its composite reliability or CR. CR indicated the sum of indicators' loading and it's variance in error. After establishing items' reliability, validity of the measurement model was tested. This involved analysis of convergent validity and discriminant validity. Convergent validity examined whether an item in the latent variable measured what it intended to measure [70], while discriminant validity indicated a degree of difference between items in a latent variable [71]. Table 1 outlines the outer loading values, composite reliability (CR) and average variance extracted AVE) of the scales used.

Aggregation of data

Next, data was aggregated from individual level to the team level. Following [67], 1436 individual scores in this study in accordance to their respective teams (300 teams in total), were tested for consistency in agreement using the $r_(WG(J))$ index by James et al. (1984). The $r_(WG(J))$ index explains the uniformity in team members' ratings in terms of their proportional reduction in error variance [72]. The $r_(WG(J))$ index is calculated using the following formula:

$$r_{WG(J)} = \frac{J\left(1 - \frac{\tilde{s}_{X_j}}{\sigma_E^2}\right)}{J\left(1 - \frac{\tilde{s}_{X_j}^2}{\sigma_E^2}\right) + \left(\frac{\tilde{s}_{X_j}^2}{\sigma_E^2}\right)}, \qquad \qquad t \qquad h$$

e

-2 >

7

variance of the observed score of J number of items, and o²E is the expected variance from the complete lack of agreement among the team members [72]. In other words, the r_(WG(J)) index is the interaction between the within-group variance of the total number of items with the expected variance that is assumed to occur due to random responses [73]. All 300 teams in the data sets of this study had a strong level of agreement ranging from 0.8325 to 0.9940.

Data Analysis and Results

Following the validation of measurement model and data aggregation, the structural model was then evaluated based on the path coefficient to establish significance of the path [74], R² measures to examine the predictive power of exogenous latent variable [75], predictive relevance (Q²) for predictive relevance of the model [69] and goodness of fit (GoF) to determine the overall prediction of the model [76]. Background of respondents

A total of 1436 nurses participated, 300 of them were team leaders and the remaining 1136 were team members. Their profiles are detailed out according to two categories; team leaders and team members.

Team leaders were mostly female, amounting up to 296 female leaders, representing 98.7% of the whole leaders' category. The remaining 4 leaders were males, taking up 1.3% of the leaders' category. Majority of the leaders were Malays (89.3%), 5.3% were Indians, 5% were Chinese and 0.3% of the leaders stated their ethnicity as others such as Iban, Kadazan, Dusun and the like. On average, their age were around 40 years old, with the minimum age being 22 years old, and the maximum age being 60 years old. Among the team leaders, 33.7% were Chief Nurses (Matrons), 63.7% were Staff Nurses, and the remaining 2.7% were Community Nurses. With regards to their academic qualification, majority of the team leaders were diploma holders (80.3%), while 10.3% have a bachelor's degree, 9% have nursing certificates and the remaining 0.3% indicated that they have other qualifications such as a post graduate degree. Team leaders were also asked to average indicate their job tenures. The organizational tenure was 10.6 years with minimum tenure at 6 months, and maximum tenure at 36 years. In terms of the tenure of their nursing position, majority of the leaders have an average tenure of 8.8 years, with minimum tenure of 6 months and a maximum tenure of 37 years. As for the team tenure, on average, the leaders have been in the team for 7.7 years, with a minimum of 6 months, and a maximum of 32 years.

Apart from 300 team leaders, there were 1136 team members who participated in this study. 97.6% were females nursing members and the remaining 2.4% were males. Their ages were 32.5 years old in average with 20 years old minimum and 59 years old maximum. 91% of team members were Malays while the remaining 5.4% and 2.5% were Indian and Chinese respectively. There were also 1.1% of others' ethnicity such as Iban, Kadazan, Dusun and the like. In terms of nursing position, 0.7% of the members were Chief Nurses (Matrons), majorities of 90.6% were Staff Nurses and the remaining 8.7% were Community Nurses. Most of them hold a diploma (87.2%), followed by nursing certificate (8.1%) and a bachelor's degree (3.7%). A remaining 1% holds other academic gualification such as a postgraduate degree. Team members were also asked about their tenures with the organization, their current position and the team. On average, team members have tenure of 5.9 years, with minimum organizational tenure of 6 months and a maximum of 35 years. With regards to their position tenure, the mean for position tenure is 8 years with a minimum of 6 months and a maximum of 38 years. In addition, the mean for members' team tenure is 5.2 years with a minimum of 6 months and a maximum of 30 years.

Mean scores and standard deviation of the studied variables

The research instruments used in this study were designed using different types of Likert scales; five -point scales and seven points scale as a strategy to reduce the effects of common method bias. Items were carefully arranged so that responses can be interpreted correctly by reducing common scale properties [77]. Team performance were measured using a seven-point Likert scale, while team skills were measured using a five-point Likert scale. Following [78] and [66], for items in the five-point Likert scale. mean scores of equal or less than 2.99 were regarded as low, mean scores ranging from 2 to 3.99 were regarded as moderate and mean scores of 4.00 and higher were regarded as high. Meanwhile, as for items in the seven-point Likert scale, mean scores of equal or less than 2.99 were considered as low, mean scores between 3 to 4.99 were considered as moderate, and mean scores of 5 and higher were considered as high.

Construct	Item	Loading	CR	AVE
Team skills	Skills 1	0.7237	0.888	0.665
	Skills 2	0.843		
	Skills 3	0.8622		
	Skills 4	0.8267		
Team task performance	Performance_1	0.8793	0.949	0.787
	Performance_2	0.8944		
	Performance_3	0.8977		
	Performance_4	0.9145		
	Performance_5	0.848		
Team contextual performance	Performance_6	0.854	0.968	0.772
	Performance_7	0.8514		
	Performance_8	0.8483		
	Performance_9	0.8869		
	Performance_10	0.932		
	Performance_11	0.8641		
	Performance_12	0.882		
	Performance_13	0.96		
	Performance_14	0.8229		

Table 1: Outer loading values, composite reliability (CR) and average variance extracted (AVE)

Item	Category	Frequency	Percentage
Gender	Female	296	98.7
	Male	4	1.3
Ethnicity	Malay	268	89.3
	Indian	16	5.3
	Chinese	15	5.0
	Others	1	0.3
Position	Nurse Supervisor (Matron)	101	33.7
	Staff Nurse/Sisters	191	63.7
	Community Nurse	8	2.7
Qualification	Bachelor's Degree	31	10.3
	Diploma	241	80.3
	Certificate	27	9.0
	Others	1	0.3

Table 2: Team leaders' profile

Item	Mean	SD	Min	Max
Age (years)	40.1	7.8	22	60
Organization tenure (years)	10.6	7.3	0.5	36
Position tenure (years)	8.8	7.5	0.5	37
Team tenure (years)	7.7	7.0	0.5	32

Table 3: Mean for age and tenure (team leaders)

Item	Category	Frequency	Percentage
Gender	Female	1109	97.6
	Male	27	2.4
Ethnicity	Malay	1034	91
	Indian	61	5.4
	Chinese	29	2.5
	Others	12	1.1
Position	Nurse Supervisor (Matron)	8	0.7
	Staff Nurse/Sisters	1029	90.6
	Community Nurse	99	8.7
Qualification	Bachelor's Degree	42	3.7
	Diploma	994	87.2
	Certificate	92	8.1
	Others	11	1.0

Table 4. Team members' profile

Item	Mean	SD	Min	Max
Age (years)	32.5	6.7	20	59
Organization tenure (years)	5.9	5.4	0.5	35
Position tenure (years)	8.0	5.8	0.5	38
Team tenure (years)	5.2	4.8	0.5	30

Table 5. Mean for age and tenure (team members)

(10)

Variables		SD
Team skills	4.24	0.61
Team task performance Team contextual performance	5.85 5.77	0.84 0.90

Table 6: Means scores and standard deviation of the studied variables

Relationship	Beta	SE	t-values
Team skills -> Team task performance	0.1446**	0.058	2.495
Team skills -> Team contextual performance	0.1149*	0.058	1.991

Table 7: Path Coefficient for Team Skills and Team Performance

Endogenous variable	Q ²	R ²
Team Task Performance	0.591	0.732
Team Contextual Performance	0.611	0.763

Table 8: Predictive relevancy

 $\langle 11 \rangle$

Hypothesis testing

Team skills were found to have positive and significant relationships with team task performance ($\beta = 0.1446$, p<0.01) and team contextual performance ($\beta = 0.1149$, p<0.05), thus providing support for both hypotheses. Values are illustrated in Table 7.

The relationships between team skills and team performance are described in Table 7. Both hypotheses were supported. In specific, team skills were found to have positive and significant relationships with team task performance (β = 0.1446, p<0.01) and team contextual performance $(\beta = 0.1149, p < 0.05)$. Following the testing of direct paths, the Q² and R² statistics were obtained. The Q² value represents the predictive relevancy or the cross validated (CV) redundancy of the mdoel [79,80]. Using the blindfolding procedure, data sets underwent a repetitive process of cross validation up to a point where each data point has been excluded and reestimated [81,82] The Q² values of team task performance and team contextual performance were 0.591 and 0.611 respectively. It can be concluded that the structural model of this study has a substantially significant predictive relevance ranging from medium to large. Meanwhile, the R² value reflects the amount of explained variance of an endogenous latent construct. High R² values reflect a higher prediction of a structural model [83]. The R² values of the structural model in this study are 0.732 and 0.763, indicating that the model is fit for this study. The values are depicted in Table 8.

Next, the GOF values are obtained. The goodness of fit index (GoF) is introduced by [84] to describe how well a structural model fit to predict an observation. The GoF index value for this study is 0.720. Based on the baseline values proposed by [85], the GoF value obtained for this study is large. Thus, it can be concluded that the structural model is valid and relevant for this study.

DISCUSSION

Team skills consist of interpersonal skills, social skills, and cognitive skills [30, 33, 41]. They are crucial to a team's functioning because the skills determine the successfulness of task completion and thus, team performance. The direct path analysis in this study revealed that team skills is significantly related to team task performance (β = 0.1446, p<0.01) and team contextual performance (β = 0.1149, p<0.05). This confirmed the earlier findings of [29, 32, 40, 61]. In the context of team task performance, nursing team members must

possess skills that go beyond technical specialties, such as teamwork skills, supervision skills, communication skills, and patient education skills [61, 64]. When accumulated at team level, nursing skills provide strong pursuit towards nursing team performance. Competent member skills ensure successful task accomplishments that lead to greater team performance. In this study, the nursing team members have a relatively high perception towards their teams' skills (M= 4.2399), implying that the team members have had confidence that they possess the required skills to perform their nursing duties. This in turn would drive them towards achieving greater team task performance. In the context of team contextual performance, well-developed skills will enhance the contextual performance of the teams. Soft skills of nursing team members, such as interpersonal skills and communication skills, will intensify the team's drive for contextual performance through systematic collaborations, tolerance, and understanding of each other's role [54]. Also, when team members have the necessary skills to exercise team work, they will encourage healthy work surroundings through good and supportive work relationships [53, 61, 64]. In turn, this will lead to a greater team contextual performance.

CONCLUSION

Nursing teams are the pulse of healthcare. The skills possessed by nurses are not only important to patients whom they attend to, but is also important to them as team members. This study was done with limited contact between the researchers and the respondents due to the high restrictions imposed by the management of public hospitals on outsiders. Although approval was obtained, the data collection went through a rigid procedure. Thus for future studies, it would be advantageous if researchers can establish closer contact with respondents to enhance data accuracy and to avoid selection bias. Besides, it is also advised that future studies expand the selection of team characteristics as to cater to modern and recent challenges faced by nursing teams. This study adds values to the current field of team performance as it uncovers the importance of team skills on the bidimensionality of team performance.

ETHICAL CONSIDERATION

This study was registered with the National Medical Research Register (NMRR) by the Ministry of Health Malaysia [NMRR-13-1717-1698(IIR)].

ACKNOWLEDGEMENT

This paper is an extraction of Azlyn Ahmad Zawawi's PhD thesis (Universiti Sains Malaysia). We would like to thank the Director General of Health Malaysia for his permission to publish this article.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

- Salas E, DiazGranados D, Weaver SJ, King H. Does team training work? Principles for health are. Academic Emergency Medicine. 2008 Nov;15(11):1002-9.
- 2. Temkin-Greener H, Gross D, Kunitz SJ, Mukamel D. Measuring interdisciplinary team performance in a long-term care setting. Medical care. 2004 May 1:472-81.
- 3. White GL, Smith KH. Leadership characteristics and team outcomes in the development of a marketing web page. Journal of International Technology and Information Management. 2010;19(3):6.
- 4. Choi SY, Lee H, Yoo Y. The impact of information technology and transactive memory systems on knowledge sharing, application, and team performance: A field study. MIS quarterly. 2010 Dec 1:855-70.
- Howard LW, Turban DB, Hurley SK. Cooperating teams and competing reward strategies: Incentives for team performance and firm productivity. Journal of Behavioral and Applied Management. 2016 Nov 14;3(3):1054.
- Huckman RS, Staats BR. Fluid tasks and fluid teams: The impact of diversity in experience and team familiarity on team performance. Manufacturing & Service Operations Management. 2011 Jul;13(3):310-28.
- Baker DP, Salas E. Principles for measuring teamwork skills. Human factors. 1992 Aug;34(4):469-75.
- Fransen AF, van de Ven J, Merién AE, de Wit-Zuurendonk LD, Houterman S, Mol BW, Oei SG. Effect of obstetric team training on team performance and medical technical skills: a randomised controlled trial. BJOG: An International Journal of Obstetrics & Gynaecology. 2012 Oct;119(11):1387-93.
- 9. Hannah ST, Walumbwa FO, Fry LW. Leadership in Action Teams: Team Leader and Members' Authenticity, Authenticity Strength, And Team Outcomes. Personnel

Psychology. 2011 Sep;64(3):771-802.

- 10. Katzenbach JR, Smith DK. The wisdom of teams: Creating the high-performance organization. Harvard Business Review Press; 2015 Sep 22.
- 11. Hunt EA, Shilkofski NA, Stavroudis TA, Nelson KL. Simulation: translation to improved team performance. Anesthesiology clinics. 2007 Jun 1;25(2):301-19.
- 12. Tannenbaum SI, Traylor AM, Thomas EJ, Salas E. Managing teamwork in the face of pandemic: evidence-based tips. BMJ Quality & Safety. 2020 May 29.
- 13. Ministry of Higher Education Malaysia [MOHE]. (2010). Development of nursing education in Malaysia: Towards the Year 2020.
- Ahmad N, Oranye NO. Empowerment, job satisfaction and organizational commitment: a comparative analysis of nurses working in Malaysia and England. Journal of nursing management. 2010 Jul;18(5):582-91.
- 15. Barnett T, Namasivayam P, Narudin DA. A critical review of the nursing shortage in Malaysia. International nursing review. 2010 Mar;57(1):32-9.
- 16. Kalisch BJ, Lee H, Salas E. The development and testing of the nursing teamwork survey. Nursing research. 2010 Jan 1;59(1):42-50.
- 17. Knebel E, Greiner AC, editors. Health professions education: A bridge to quality. National Academies Press; 2003 Aug 1.
- Alam MM, Mohammad JF. Level of job satisfaction and intent to leave among Malaysian nurses. Business Intelligence Journal. 2010 Jan;3(1):123-37.
- Arabi R, Neill J, Hutton A. Neonatal Intensive Care Unit in Malaysia: Staff Nurses' Positive Eperiences. Journal of Nursing & Care. 2012;1(03):1-5.
- 20. Maskor NA., Krauss SE, Muhamad M, Nik Mahmood NH. Communication competencies of oncology nurses in Malaysia. Asian Pacific Journal of Cancer Prevention. 2013:14(1), 153-158.
- 21. Mohamed ZN, Newton JM, McKenna L. Belongingness in the workplace: a study of Malaysian nurses' experiences. International Nursing Review. 2014 Mar;61(1):124-30.
- 22. Othman N, Nasurdin AM. Social support and work engagement: a study of Malaysian nurses. Journal of nursing management. 2013 Nov;21(8):1083-90.
- 23. Nursing Division Ministry of Health Malaysia. (2012b). National core

competency for malaysian nurses Retrieved 4th February 2013, from http://nursing.moh.gov.my/modules/mas top_publish/files/files_4f5fda9647986.pdf.

- 24. Sears K, O'Brien-Pallas L, Stevens B, Murphy GT. The relationship between the nursing work environment and the occurrence of reported paediatric medication administration errors: A pan Canadian study. Journal of pediatric nursing. 2013 Jul 1;28(4):351-6.
- 25. Tam, S. (2013, 2nd February 2014). When medical negligence becomes the killer, Yahoo News Malaysia. Retrieved from https://my.news.yahoo.com/whenmedical-negligence-becomes-the-killer-030054225.html.
- 26. Khoo EM, Lee WK, Sararaks S, Samad AA, Liew SM, Cheong AT, Ibrahim MY, Su SH, Hanafiah AN, Maskon K, Ismail R. Medical errors in primary care clinics-a cross sectional study. BMC family practice. 2012 Dec;13(1):1-6.
- Leufer T, Cleary-Holdforth J. Let's do no harm: medication errors in nursing: part 1. Nurse Education in Practice. 2013 May 1;13(3):213-6.
- Hoegl M, Gemuenden HG. Teamwork quality and the success of innovative projects: A theoretical concept and empirical evidence. Organization science. 2001 Aug;12(4):435-49.
- 29. Horwitz SK, Horwitz IB. The effects of team diversity on team outcomes: A meta-analytic review of team demography. Journal of management. 2007 Dec;33(6):987-1015.
- Wageman R, Hackman JR, Lehman E. Team diagnostic survey: Development of an instrument. The Journal of Applied Behavioral Science. 2005 Dec;41(4):373-98.
- 31. Gundlach M, Zivnuska S, Stoner J. Understanding the relationship between individualism–collectivism and team performance through an integration of social identity theory and the social relations model. Human relations. 2006 Dec;59(12):1603-32.
- Morgan Jr BB, Salas E, Glickman AS. An analysis of team evolution and maturation. The Journal of General Psychology. 1993 Jul 1;120(3):277-91.
- Morgeson FP, Reider MH, Campion MA. Selecting individuals in team settings: The importance of social skills, personality characteristics, and teamwork knowledge.

Personnel psychology. 2005 Sep;58(3):583-611.

- 34. Salas E, DiazGranados D, Klein C, Burke CS, Stagl KC, Goodwin GF, Halpin SM. Does team training improve team performance? A meta-analysis. Human factors. 2008 Dec;50(6):903-33.
- Stevens MJ, Campion MA. Staffing work teams: Development and validation of a selection test for teamwork settings. Journal of Management. 1999 Jan 1;25(2):207-28.
- 36. Borman WC, Motowidlo SJ. Task performance and contextual performance: The meaning for personnel selection research. Human performance. 1997 Jun 1;10(2):99-109.
- 37. Motowidlo SJ, Van Scotter JR. Evidence that task performance should be distinguished from contextual performance. Journal of Applied psychology. 1994 Aug;79(4):475.
- Al-Kandari F, Thomas D. Factors contributing to nursing task incompletion as perceived by nurses working in Kuwait general hospitals. Journal of clinical nursing. 2009 Dec;18(24):3430-40.
- Leufer T, Cleary-Holdforth J. Let's do no harm: medication errors in nursing: part 1. Nurse Education in Practice. 2013 May 1;13(3):213-6.
- Al-Homayan AM, Mohd Shamsudin F, Subramaniam C, Islam R. Impacts of job demands on nurses' performance working in public hospitals. American Journal of Applied Sciences. 2013;10(9):1050-60.
- 41. Salas E, Sims DE, Burke CS. Is there a "big five" in teamwork?. Small group research. 2005 Oct;36(5):555-99.
- 42. Miller K, Riley W, Davis S. Identifying key nursing and team behaviours to achieve high reliability. Journal of nursing management. 2009 Mar;17(2):247-55.
- O'Boyle C, Robertson C, Secor-Turner M. Nurses' beliefs about public health emergencies: fear of abandonment. American journal of infection control. 2006 Aug 1;34(6):351-7.
- 44. Majmudar A, Jain AK, Chaudry J, Schwartz RW. High-performance teams and the physician leader: an overview. Journal of Surgical Education. 2010 Jul 1;67(4):205-9.
- 45. Brunetto Y, Farr-Wharton R, Shacklock K. Supervisor-nurse relationships, teamwork,

role ambiguity and well-being: Public versus private sector nurses. Asia Pacific Journal of Human Resources. 2011 Jun;49(2):143-64.

- 46. Kalisch BJ, Lee H, Salas E. The development and testing of the nursing teamwork survey. Nursing research. 2010 Jan 1;59(1):42-50.
- Kalisch BJ, Landstrom GL, Hinshaw AS. Missed nursing care: a concept analysis. Journal of advanced nursing. 2009 Jul;65(7):1509-17.
- 48. Markham T, Carney M. Public health nurses and the delivery of quality nursing care in the community. Journal of Clinical Nursing. 2008 May;17(10):1342-50.
- 49. Hazilah AM. Practice follows structure: QM in Malaysian public hospitals. Measuring Business Excellence. 2009 Mar 20;13(1):23-33.
- 50. Tunlind A, Granström J, Engström Å. Nursing care in a high-technological environment: Experiences of critical care nurses. Intensive and critical care nursing. 2015 Apr 1;31(2):116-23.
- 51. Malaysian Medical Gazzette [MMG]. (2014). Making space at hospitals (KKM). Retrieved 4 A p r i l 2 0 1 4 f r o m http://www.mmgazette.com/makingspace-at-hospitals-kkm-health-dg-malaysiadatuk-dr-noor-hisham-abdullah/
- 52. The Borneo Post. (2011). Public or private hospitals? The choice is yours. Retrieved 1st N o v e m b e r , 2 0 1 4 , f r o m http://www.theborneopost.com/2011/02/1 8/public-or-private-hospitals-the-choice-isyours.
- 53. Canales MK. MANUSCRIPT.
- 54. Kramer M, Maguire PA, Brewer BB. Clinical nurses in Magnet hospitals confirm productive, healthy unit work environments. Journal of Nursing Management. 2011 Jan;19(1):5-17.
- 55. Pearson A, Porritt KA, Doran D, Vincent L, Craig D, Tucker D, Long L, Henstridge V. A comprehensive systematic review of the evidence on structure, process, characteristics and composition of a nursing that fosters а healthy work team environment. International Journal of Evidence-Based Healthcare. 2006 Jun;4(2):11859.
- 56. Bleakley A. Working in "teams" in an era of "liquid" healthcare: What is the use of theory?Journal of interprofessional care. 2013 Jan 1;27(1):18-26.
- 57. Kozlowski SW, Bell BS. Work groups and teams in organizations. Handbook of Psychology, Second Edition. 2012 Sep 26;12.

- 58. Hollenbeck JR, DeRue DS, Guzzo R. Bridging the gap between I/O research and HR practice: Improving team composition, team training, and team task design. Human Resource Management: Published in Cooperation with the School of Business Administration, The University of Michigan and in alliance with the Society of Human Resources Management. 2004 Dec;43(4):353-66.
- 59. Somech A, Drach-Zahavy A. Translating team creativity to innovation implementation: The role of team composition and climate for innovation. Journal of management. 2013 Mar;39(3):684-708.
- 60. Registered Nurses' Association of Ontario [RNAO]. (2006). Collaborative practice among nursing teams. Retrieved 20th M a r c h 2 0 1 4 f r o m http://rnao.ca/bpg/guidelines/collaboura tive-practice-among-nursing-teamsguideline.
- 61. Mallik M, Hall C, Howard D. Nursing Knowledge and Practice E-Book. Elsevier Health Sciences; 2009 Apr 22.
- 62. Lehmann R, Seitz A, Meyburg J, Hoppe B, Hoffmann GF, Tönshoff B, Huwendiek S. Pediatric in-hospital emergencies: real life experiences, previous training and the need for training among physicians and nurses. BMC research notes. 2019 Dec 1;12(1):19.
- 63. Cook O, McIntyre M, Recoche K, Lee S. " Our nurse is the glue for our team"-Multidisciplinary team members' experiences and perceptions of the gynaecological oncology specialist nurse role. European Journal of Oncology Nursing. 2019 Aug 1;41:7-15.
- 64. Lipponen K, Kyngäs H, Kanste O. Together we are more effective: Nursing team members' experiences of development work on patient education. Journal of Nursing Education and Practice. 2013 Sep 1;3(9):60
- 65. King A, Long L, Lisy K. Effectiveness of team nursing compared with total patient care on staff wellbeing when organizing nursing work in acute care ward settings: a systematic review protocol. JBI Database of Systematic Reviews and implementation reports. 2014 Jan 1;12(1):59-73.
- 66. Morton DL, Thompson JF, Cochran AJ, Mozzillo N, Nieweg OE, Roses DF, Hoekstra HJ, Karakousis CP, Puleo CA, Coventry BJ, Kashani-Sabet M. Final trial report of sentinel-node biopsy versus nodal

observation in melanoma. New England Journal of Medicine. 2014 Feb 13;370(7):599-609.

- 67. Natale S, Ricci F. Critical thinking in organizations. Team Performance Management: An International Journal. 2006 Oct 1.
- 68. Sekaran U, Bougie R. Research Methods For Business, A Skill Building Approach, John Willey & Sons. Inc. New York. 2003.
- 69. Jayasingam S, Ansari MA, Jantan M. Influencing knowledge workers: the power of top management. Industrial Management & Data Systems. 2010 Feb 2.
- Jantan H, Hamdan AR, Othman ZA. Human talent prediction in HRM using C4. 5 classification algorithm. International Journal on Computer Science and Engineering. 2010 Dec;2(8):2526-34.
- Chin WW. The partial least squares approach to structural equation modeling. Modern methods for business research. 1998 Jan 1;295(2):295-336.
- 72. Urbach N, Ahlemann F. Structural equation modeling in information systems research using partial least squares. Journal of Information technology theory and application. 2010 Jun 1;11(2):5-40.
- 73. Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path m o d e l i n g i n i n t e r n a t i o n a l marketing. Advances in international marketing, 20, 277-319. doi:10.1108/S1474-7979(2009)0000020014
- 74. LeBreton JM, Senter JL. Answers to 20 questions about interrater reliability and interrater agreement. Organizational research methods. 2008 Oct;11(4):815-52.
- 75. Biemann T, Cole MS, Voelpel S. Withingroup agreement: On the use (and misuse) of rWG and rWG (J) in leadership research and some best practice guidelines. The Leadership Quarterly. 2012 Feb 1;23(1):66-80.
- MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation Analysis. Annual Review of Psychology, 58, 593-614. Doi: 10.1146/annurev.psych.58.110405.085542. 593-614.
- 77. Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Erlbaum.
- 78. Wetzels, M., Odekerken-Schroder, G., & Van Oppen, C. (2009). Using PLS path modeling for assessing hierarchical construct models: guidelines and empirical illustration. Management Information

Systems Quarterly, 33(1), 177-195.

- 79. Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. Annual Review of Psychology, 63, 539-569.
- Stone M. Cross-validatory choice and assessment of statistical predictions. Journal of the Royal Statistical Society: Series B (Methodological). 1974 Jan;36(2):111-33.
- 81. GEISERS S. The predictive sample reuse methods with application. J. Am. Stat. Assoc. 1975;70:320-8.
- 82. Hair Jr JF, Hult GT, Ringle C, Sarstedt M. A primer on partial least squares structural equation modeling (PLS-SEM). Sage publications; 2016 Feb 29.
- Chin WW. The partial least squares approach to structural equation modeling. Modern methods for business research. 1998 Jan 1;295(2):295-336.
- Bagozzi RP, Yi Y, Phillips LW. Assessing construct validity in organizational research. Administrative science quarterly. 1991 Sep 1:421-58.
- 85. Temme D, Kreis H, Hildebrandt L. PLS path modeling. Humboldt-Universität zu Berlin,Wirtschaftswissenschaftliche Fakultät; 2006 Dec 18.